IN THE CLAIMS

Claim 1. (Original) A method of imaging, measuring and displaying a 3-dimensional dose distribution of an energy field in a translucent 3-dimensional object comprising:

- (a) applying an energy field to the object such that the optical properties are changed upon receipt of the energy;
- optically scanning the object at various positions and angles to provide a series of 2-dimensional representations of the object;
- (c) detecting the measuring light projection data indicative of optical changes in the object;
- (d) calibrating the optical change in the object to the dose of the energy corresponding to each position scan;
- (e) mapping the dose of the energy in the object and
- (f) visually recording the summation of said 2-dimensional representations on an image display receiver comprising a radiation activated metal salt of a crystalline, thermochromic polyacetylene having a conjugated structure uniformly distributed in a rigid or high density semi-solid matrix by a color alteration due to polymerization of the activated polyacetylene to provide a permanent, 3-dimensional image of the object in high spatial resolution.

Claims 2 through 7. (Currently Cancelled)

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Claim 8. (Original) The method of claim 1 wherein said crystalline polyacetylene is a C_2 to C_{10} radiochromic monomer having the formula:

$$A-(CH_2)_m-(C\equiv C-)_p-(CH_2)_n-B$$

wherein m and n each independently have a value of from 0 to 30; p has a value of 2 to 4; A and B each independently are R, OR_1 , OH, $COOR_2$, $CONR_3R_4$ or $(CH_2)_r$ -O-CO- NR_5R_6 or a metal salt of the acid or ester; and where R, R_1 , R_2 , R_3 , R_4 , R_5 and R_6 are each independently hydrogen or C_1 to C_{12} alkyl or aryl and r has a value of from 1 to 4.

Claim 9. (Original) The method of claim 1 wherein the metal salt of the crystalline polyacetylene is a lithium salt.